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MIGRATION IN THE HUMBER DISTRICT IN THE AUTUMN OF 1892.

By John Cordeaux.

Amongst the many interesting features connected with the migration of birds during the past autumn, perhaps the most worthy of record have been the two "great rushes" of migrants —the first on Sept. 20th—21st, and the second on Oct. 14th, 15th, 16th, and under precisely similar conditions of weather.

On Sept. 20th the wind shifted suddenly to N.E., with much rain and strong wind. On the morning of the 21st, on the Lincolnshire coast, as Mr. G. H. Caton Haigh writes, "I found all the hedges swarming with Redstarts; some had got as far as five miles inland. I saw many other small birds—Whitethroats, Robins, Pied and Spotted Flycatchers, Wheatears, Hedge-sparrows, and a few Blue Tits. When the hedges were beaten, the little birds came out in clouds, the Redstarts being more numerous than all the rest put together. In a hedge at North Cotes I saw an immature Bluethroat; it came out on a twig within three feet of my face; subsequently I shot it, but it fell in thick covert, and probably was only winged, as I searched, with two men, most of the afternoon without success. On the 22nd—fewer Redstarts, but more Robins—Rock Pipits had arrived." On the Spurn side of the Humber large numbers of Redstarts, Wheatears, and others were seen at the same date, and at least one Bluethroat. I see in Mr. J. H. Gurney's "Notes from Norfolk" (p. 401), that on the 21st, "large numbers of Redstarts put in an appearance, and a few Bluethroats, *speedily followed* by a great flight of Robins." This is important, as it shows the great extent of the immigration, and affords a comparison between the two coasts of Norfolk and Lincolnshire.

The second "great rush" of birds was on the 14th, 15th, and 16th of October, and was the most remarkable I have ever witnessed, both as regards the number of species and individuals. On the 13th, wind N. and N.E. in afternoon, slight but increasing, clear and bright, heavy sea on coast out of all proportion to wind. Mr. Wm. Eagle Clarke and I walked to the lighthouse at the Spurn; but, excepting the ordinary shore frequenters, very few birds were seen by us—one Woodcock heard of, one Goldcrest seen, a few Redwings among the sand-hills and thickets of sallow-thorn, *Hippopha rhamnoides.* We had never before seen this local and spiny shrub so densely laden with berries, clustered in orange-coloured masses round stems and branches, and giving quite a rich glow to the sand-dunes which the plant covers. On our return later in the day over the same ground a few more Redwings were seen.

Shortly after midnight in the early morning of the 14th the wind got full east, with quite half-a-gale and heavy beating rain continuous to the morning of the 16th; the nights very dark, and so thick at sea during the day that a large steamboat moored a mile from the shore could only be made out at rare intervals. During this time the immigration was immense; greatest in number were Golden-crested Wrens. First I heard their notes on opening my bed-room window on the morning of the 14th, and soon saw some in the garden below; they swarmed in every hedgerow, but on Saturday, the 15th, the number had enormously increased; Goldcrests everywhere—in hedges and gardens, dead thorns and hedge-trimmings, rubbish-heaps, beds of nettles and dead Umbelliferæ, the reeds in ditches, sides of haystacks, and the thorn-fences of sheds and yards; the sallow-thorns were *densely crowded,* many found shelter in the long sea-grass, and others again crouched on the bare rain-swept sands between the sea and the dunes. Many might have been taken with a botterfly-net.

On this day I saw a very handsome Firecrest. I was standing in shelter of a big fence, watching the Goldcrests working inland up the hedge and flitting close to my face, when one tried first to alight on the stick of an umbrella which I held horizontally over my shoulder, and then perched on a twig within a foot of my nose. I had it in view for some minutes, and never above two or three feet away. The most characteristic markings, which at once catch the eye, are the conspicuous white streak on the side of the head, the sulphur-green patches on the side of neck, and the flame-coloured or orange-vermilion crest. It was both a finer and brighter example (probably an adult male) than the one I got from near the same locality on Nov. 4th, 1889.

Next to the Goldcrests the Robins were the most numerous, swarming in every hedgerow, bush and garden. On the 16th, in one corner of the warren cottage garden, I counted up to fifty, and then gave it up. Several had found shelter in the sea-grass, and I had to be careful not to put my foot on them, so reluctant were some to rise.

On the 15th about twenty Grey Shrikes were seen, four or five together, the rest singly. On Sunday morning, the 16th, I saw seven or eight between Easington and Kilnsea warren; one trying to seize a Goldcrest in a blackthorn swarming with those little wanderers; another was hovering, Kestrel-like, over stubbles, frequently changing ground. Some on hedges; one on the telegraph-wire, and another—a fine adult male with a single wing-spot—was harassing the Robins in a garden, and subsequently I saw him apparently trying to fasten an unfortunate Goldcrest, held by the nape, on the upper wire of a spiked fence—a most useful invention for the Grey Shrike, and one which he seems quick to make use of.

Other species seen during the three days were two Rough-legged Buzzards, Long and Short-eared Owls, Rooks and Starlings (large migration of the two latter), Larks in great numbers, Ring Ouzels (many on 15th), Blackbirds, Redwings, and Thrushes; some Wheatears (all I saw were perching on rails and quick-fences), Snow Buntings (a few), Willow Wrens (very many)—these seemed much browner and with less distinct eye-streak than our local birds, which had all left by the middle of September; and now again we have quite a swarm appearing on migration with others at Spurn from over the sea, and most probably from Northern Europe. Hedgesparrows, great many; Stonechats, some; Woodcocks (first flight), Common Snipe, Jack Snipe. On the 16th a few Fieldfares and flights of Grey Crows.

Writing from Lincolnshire, Mr. Haigh says:—"The rush of

Goldcrests was quite unprecedented in my experience. I did not see any on 13th, but on 14th and 15th they swarmed in every hedge in thousands, and were so tame that they could almost be caught by hand. Robins and Hedgesparrows were also numerous; all the Thrushes, except Fieldfares, were moving, but Blackbirds not till the 15th; Ring Ouzels pretty common on 14th and 15th."

Out of fourteen Woodcocks shot on the 15th, all of which I handled, seven were probably young of the year, and had the outer web of the first primary brownish and very regularly tooth-marked throughout. In four the outer web was whitish and the marks obliterated; in the remaining three these markings were of an intermediate character—perhaps birds of the previous year. If the nature of these notches can be taken as an indication of age, then it would appear that the old and young come at the same time and in the same flight.

Writing from Heligoland, Mr. Gätke says:—"We had Redbreasts and Goldcrests on the 11th, 12th, and 13th; the former in good numbers, the latter nothing like your numbers; on the 14th only in the morning, great rush over the island, but none staying." On the Norfolk coast also, on 15th, Robins are reported as 100; Golden-crested Wrens in swarms.

In both these cases of "great rushes," which I have cited under similar meteorological conditions, great flights of migrants were evidently passing the North Sea, probably from N.E. to S.W., when the easterly gales caught them on the flank, and drove them helter-skelter on to the east coast.

NOTES AND QUERIES.

Presentation to the Rev. Leonard Blomefield, M.A., F.L.S.—An event of some interest to naturalists took place at the last meeting of the Linnean Society, held on the 17th inst., when a congratulatory address, illuminated on vellum, was presented to the Rev. Leonard Blomefield, M.A., F.L.S. (formerly Leonard Jenyns, Vicar of Swaffham Bulbeck, Cambridgeshire, but sometime resident in Bath), on the occasion of the seventieth anniversary of his election as a Fellow of the Society, and in recognition of his continuous and useful labours as a zoologist.

Mr. Blomefield was elected in November, 1822, and is now in his 93rd year. He is an original member of the Zoological, Entomological, and Ray Societies, and joined the British Association in the second year of its existence. As the author of a useful 'Manual of British Vertebrates' (written years ago when he was an active member of the Cambridge Philosophical Society), 'Observations on Natural History,' 'Observations on Meteorology,' and sundry scientific papers in the 'Transactions' of learned societies, he is best known under the more familiar name of Jenyns, which, for family reasons, he changed some time since for that of Blomefield. He might have served as naturalist on board the 'Beagle,' having been invited to do so before Darwin, who in that capacity subsequently made the voyage famous by his delightfully written 'Journal of a Naturalist.' As it was, he published an excellent account of the Fishes collected on that expedition. He now resides at Bath, where he is the President of a Natural History Society which he founded in 1855.

MAMMALIA.

Stone in a Horse's Stomach.—With reference to a note on this subject (p. 402), and your comment thereon, permit me to say that some years ago I possessed a hunter (mare), 15 hands 3 inches, and about twelve years old, which soon after I bought her passed a small stone about 2½ in. in diameter. Some three years later she showed symptoms of inflammation of the bowels, which made me suspect the existence of another stone. All efforts to relieve her failed, and the mare died. A *post-mortem* revealed the presence of a very large stone, which having just entered the bowels from the stomach had caused a stoppage, and of course acute inflammation. This stone, which I have by me now, weighs 3 ℔s. 1 oz., is apple-shaped, and averages 4½ in. in diameter. Like the first one, it is built up in spherical layers, and undoubtedly formed in the stomach by concretion there. It could not have been formed in the bladder, as it had barely left the stomach; and it could not have been swallowed, as, besides its great size, it does not in substance resemble any external stone. I believe the occasional formation of these stones in the stomach of the horse is a fact well known to veterinary surgeons.—WALTER CHAMBERLAIN (Harborne Hall, near Birmingham).

Importation of Hares from New Zealand.—It may interest you to hear that over 5000 hares have arrived (Oct. 24th) from New Zealand, in splendid condition, in the cold chambers of the steamer. Of course these are descendants of the stock sent out from England. They have come in such fine order that the skins alone ought to pay the whole freight.—THOMAS CHRISTY (25, Lime Street, E.C.).

Observations on the Mole.—Last May a full-grown Mole was brought to me by a boy who knew my interest in such things. He had caught it about 5·15 p.m. as it was waddling from a puddle in a road, where it had been, presumably, drinking. I made the following notes on it:—

"6 p.m. Beast very lively, squeaking like a mouse, but not so shrilly;

scratches itself all over incessantly, as if troubled by parasites. Put it on the grass. It did not burrow into the ground, but only under the grass, which was rather long. When put on a flower-bed it covered itself up in half a minute by my watch. Dug it out and placed it on a hard path, along which it scuttled quickly; did its best to turn and bite when picked up by the skin behind the shoulders.

6.15. Put it into a large empty packing-case. (I brought the case indoors, and watched the proceedings as I had tea.) In fifteen minutes it became less timid, and took no notice of being scratched on the back; very restless, though squeaking sensibly lessened; scratching continually as before. Tried to climb up the corners of the box, always falling back. Put some worms and slugs (*Arion ater* and *Agriolimax agrestis*) and a saucer of water on the floor of the box; of these it took no notice, continuing as restless as ever. It 'scuttles' (not walks or runs) on the tips of its front paws, using its hind legs very like a hedgehog.

6.30. It seized a worm with its front paws, quickly finding the end, which it began to crunch greedily for about half-an-inch, and then resumed its scratching and efforts to escape.

6.45. Similar performance with another half-inch of worm.

7 p.m. Finished last inch of worm. Increased efforts to climb corners till 7.30. I had put in a large worm eight inches long; it ate half-an-inch immediately.

7.14. More than half the worm eaten at intervals of about three minutes, always from an end. It will not sit still for its portrait.

7.40. Last half-inch of large worm eaten. Takes no notice of me as I sit watching it and moving about—in fact, it is practically blind; nor does it take notice of obstacles as it scuttles about—not even of a lighted taper three-quarters of an inch from its nose. Occasionally handles and smells the slugs, but does not eat them.

8 p.m. Turned it on to the flower-bed again, when it burrowed out of sight in half a minute, made its way under the surface for a yard in three minutes, when it went deeper and disappeared. Squeaks (of delight?) were to be heard till it went deeper. Large worms came up all round it as it burrowed, as if they knew what their fate would be if they stayed. What struck me was the continual activity of the little beast; it was not still for a second during the whole time I had it; every movement was quick and restless, showing no appearance of calm. Whatever it did, it did with all its might—eat, scratch, climb or scuttle. It did not drink any of the water.

May 29th. Same Mole (presumably) found dead in the garden near where it was turned out last night.'—Lionel E. Adams (Penistone, near Sheffield).

[Observations made on animals in captivity can never be so satisfactory as in a state of nature. It is well known that moles are very voracious, that they eat quantities of worms, and will feed also on slugs. See 'Zoologist,' 1887, pp. 445, 446.—Ed.]

BIRDS.

Ruff in Nottinghamshire.—The keeper at the Mansfield Reservoir shot, on August 17th, a nice specimen of this bird, which is now a very rare straggler in this county. It was by itself, in good plumage, and forms a nice addition to my county birds. I have only one other specimen, which was shot at Clipstone, also in this county.—J. Whitaker (Rainworth, near Mansfield, Notts).

Sabine's Gull in Norfolk.—An immature female of this species, apparently a bird of the year, was caught in the shore nets, at Wells, along with several Black-headed Gulls, *Larus ridibundus*, on the 16th October, and brought to me the following day. A reference to Stevenson's 'Birds of Norfolk' shows that this is the fourth recorded example for the county All have occurred in the month of October, and after exceptionally bad weather for the time of the year.—H. W. Feilden (Wells, Norfolk).

Sabine's Gull in Pembrokeshire.—On Nov. 12th I shot an immature example of Sabine's Gull, *Xema sabinii*, near the village of Amroth, Pembrokeshire. There was a strong wind blowing inshore and a heavy sea. It was late in the afternoon, almost dusk, and the bird was flying, along the surf-line, as if looking for food. It was in good condition, and is now being preserved. I am not aware that this species has been before recorded from Pembrokeshire.—Charles Jeffreys (Naturalist, Tenby).

Pomatorhine Skua and Fulmar Petrel in Mayo.—On the 2nd of October a specimen of the Pomatorhine Skua was picked up dead on the sands at Enniscrone, Killala Bay. It was quite fresh and uninjured, having been brought in by the morning's tide. The specimen was nearly adult, and would probably have assumed the full plumage of maturity at the next moult, having the long tail-feathers and white breast and belly, but still retaining the speckled throat and a barred feather or two on the lower part of back and upper tail-coverts. On the 4th October, when walking along the Enniscrone sands, I found a light-coloured variety of the Fulmar, thrown up by the surf at high-water mark; and, about a quarter of a mile further on, two young Gannets; they were all dead, but quite fresh, having been brought in by the same tide that carried the Skua ashore. A few days later I picked up, at the same part of the sands, another light-coloured specimen of the Fulmar, having some dusky-coloured feathers on shoulders and wings, showing it to be a young bird.—Robert Warren (Moyview, Ballina, Co. Mayo).

Buff Variety of the Swallow and Flycatcher.—On the 6th August last I obtained a very pretty buff variety of the Swallow, shot near Blagdon, Somersetshire: those parts which are white in the normal bird were white, and those parts which are coloured in ordinary birds were of a pale buff; eyes very light in colour. In September last Mr. J. V. Hewitt, of The Elms, Stapleton, shot in his garden a Spotted Flycatcher, of which the following is a description;—Under parts white, profusely streaked with buff; upper parts buff, with the tips of the primaries and the tip of the tail distinctly darker; eyes normal.—H. G. CHARBONNIER (Clifton, Bristol).

Late Nesting of the Tawny Owl in Scotland.—In wandering through the romantic pathways of Crichope Linn on the 19th September, I was surprised to see a nest of the Brown Owl, *Strix aluco*, placed immediately under the brink of one of the deep, dark ravines that form the uppermost portion of the Linn. A couple of new-laid, glistening white eggs were in the nest. For any species, except perhaps the Barn Owl, the above date is unusually late. But, owing to the superabundance of voles, *Avicola agrestis*, the Owls began breeding very early this year, and it seems that, for the same reason, they are continuing to nest very late in the season. Although the voles on the moors adjoining Crichope have, in a great measure, diminished from their vast numbers of a few months ago, still enough remain to account for this disturbance of the Brown Owl's usual sedate breeding habits.—R. SERVICE (Maxwelltown, Dumfries).

Garganey in Holderness.—A young male Garganey, *Querquedula circia*, was shot on Sept. 19th near Easington. This is the first example observed in the Humber district in autumn which I have had to record.—JOHN CORDEAUX (Eaton Hall, Retford).

Rare Wheatear seen near Spurn.—Mr. H. B. Hewetson, of Leeds, sends a sketch of the head of a Wheatear seen by himself and two sons on Sept. 18th, near the chalk bank at Spurn. He says, "I was quite close to it for a long time; as we walked along, it flew on with a party of Common Wheatears." It was russet-coloured, with sides of the head and throat black. It may have been an adult male *Saxicola stapazina* or *S. deserta*. Presuming, however, that Mr. Hewetson's sketch is quite correct, as to the extension of the black to the lower part of the threat, it is suggestive rather of *S. melanoleuca* (Güld.), the eastern form of the Black-throated Chat.—JOHN CORDEAUX (Eaton Hall, Retford).

Barred Warbler in Holderness.—Mr. Philip Loten, of Easington, sends a skin of the Barred Warbler, *Sylvia nisoria*, a bird of the year, shot on October 19th, at Easington, by Mr. Jalland, of Hull. This is the second recorded for that locality. The specimen was exhibited by Prof. Newton, at the meeting of the Zoological Society in London, on Nov. 1st, and has been purchased by Mr. W. Eagle Clarke for the Museum of Science and Art, Edinburgh.—JOHN CORDEAUX (Eaton Hall, Retford).

Nesting of the Great Crested Grebe in the North of Ireland.—The Irish naturalist, Thompson, mentions that in his time the Great Crested Grebe bred on the large artificial lake in Hillsborough Park. I am happy to state that in this fine demesne, belonging to the Marquis of Downshire, this interesting bird still nests annually. During the spring of 1892 there were no less than five pairs on the lake, though at the beginning of the summer two pairs had left. The remaining three pairs stayed and bred, but did not begin nesting operations till the third week of June. On June 21st I obtained a boat and rowed out into the lake. There is a small artificial island in the centre, covered with willows and alders. In the branches of a willow floating in the water, about five feet from the edge of the island, was an unfinished Grebe's nest. At the edge of the lake, under the fringe of a wood, we found another nest, containing two eggs. This nest was similarly situated to the first, being a floating structure, about eight feet from the bank, resting on a submerged branch of the willow trees which fringe the lake. There was about two feet of water under the nest, and it was well concealed from above, as well as on the side next the open lake, by the branches of the willows. To a person standing on the bank behind, the nest and the eggs in it were quite conspicuous. The nest was a large mass of rotten sticks, collected from the bottom of the water, and matted together with decayed rubbish. In the middle was a very shallow depression, lined with a few fragments of half-rotted weeds. On this the eggs lay, one being quite clean, the other much stained. They were partly covered with rotten sycamore leaves. A third egg was laid later on. Some days afterwards I approached this nest from the land side. The bird was sitting, and did not leave her eggs till I was close to the bank. She then quietly slipped into the water, and swam away without diving. She remained only a short distance outside the willows, while I waded out and examined the nest. On this occasion I took the eggs, which of course were quite uncovered. This was on June 25th. On July 5th another egg was laid in the nest. I had many opportunities of studying the habits of these interesting birds during the spring and summer. I first observed them on March 30th. They were very gregarious, always keeping rather close together, generally near the island in the centre of the lake. The pairs frequently performed various antics of courtship, which were very amusing. The male and female were almost always close together, sometimes floating side by side, with their heads drawn in for a long time, and looking very like ducks; sometimes chasing one another through the water; often both diving together. The following manœuvre was very often observed:—The male and female, who had become separated for a short time, would begin to swim towards one another, with heads erected, their long necks being stretched upwards, and the crests and ruff very conspicuous, all the time uttering a curious croaking sound, compared by Mr. Seebohm to the French word *croix*, which could be heard a long distance away. Having come close together, they would remain in the same curious attitude, with the points of their bills touching one another, as if they were engaged in earnest and confidential conversation. After this had been continued for about a minute, their necks would be drawn in, and they would continue to float side by side in the manner described above. Early in the autumn several of the birds left, but I observed one on the lake on October 16th. It was in winter plumage, the crests and tippet being almost obsolete. I have reason to believe that the Great Crested Grebe breeds in others of the small lakes in this neighbourhood.—Allan Ellison (Hillsborough, Co. Down).

Eared Grebes in Anglesea.—Mr. Banks does well to express himself cautiously as to his knowledge of the birds of Anglesea, for it is quite plain that his knowledge of the birds of that island is only "fairly good." Surely when he states (pp. 411, 412) that *Podiceps nigricollis* is resident in Anglesea, and that he has watched its nesting habits in the North of Ireland, he is mistaking the Great Crested Grebe for the Eared Grebe. If nothing else, the statement that he "shot one in mistake for a Mallard" makes this sufficiently obvious. The birds which Mr. Banks has seen so frequently in bays and land-locked waters of Anglesea, during winter and early spring, are *P. cristatus* in winter plumage. If Mr. Banks will look at the third volume of Seebohm's 'British Birds' (p. 465), he will find it stated that the Eared Grebe is a rare visitor to the British Islands, on spring and autumn migration, though a few have been obtained in winter, while there is no authentic record of its ever having nested.—Allan Ellison (Hillsborough, Co. Down).

[It is scarcely correct to state that there is no authentic record of its ever having nested in England. In the 'Birds of Middlesex' (p. 244), our correspondent will find a statement to the effect that in the 'British Miscellany' (p. 19, t. 70) there is a representation of a male and female of this species, with the nest and eggs, which were taken in a pond on Chelsea Common in June, 1805. Specimens of this bird in breeding plumage have frequently been met with, especially in the Eastern Counties, under circumstances which afforded presumptive evidence of its breeding. Thus, the late Mr. E. T. Booth, of Brighton, had "a full-plumaged adult and a couple of downy mites" brought to him some years ago by a marshman in Norfolk. This fact is recorded in the 'Transactions of the Norfolk Naturalists' Society' (vol. iv. p. 416).—Ed.]

Ruddy Sheldrake in North Devon.—At Barnstaple, last September, I saw at the birdstuffers some Ruddy Sheldrakes, which had been obtained in the neighbourhood of Woolacombe Sands, North Devon.—F. H. Carruthers Gould (Buckhurst Hill, Essex).

Ruddy Sheldrake in North Devon.—I am informed by Mr. Rowe, of Barnstaple, that three specimens of the Ruddy Sheldrake were killed on the Taw, near Braunton, in June last, by a man called Petherick. The date is of interest in connection with Mr. Ogilvie's paper in the last number.—H. A. Evans (Westward Ho).

Notes from Devonshire.—Several Quails have been killed; one in a stubble-field at Umberleigh, North Devon, on September 2nd. A friend of mine shot one at Tedburn-Saint-Mary, near Exeter, on the 17th of that month. A Spotted Crake, *Porzana maruetta*, was picked up on the railway near Stoke, Exeter, on October 3rd, and a Hoopoe was shot at Moretonhampstead on the 4th. Several Teal and Wigeon were shot on the Exe in the early part of October, but up to the present the weather has not been severe enough for great numbers of wildfowl. I have been fortunate in obtaining a pair of Grey Plovers, *Squatarola helvetica*, near Exeter; these birds are very casual visitors to the south of this county, being more often found in the North of Devon.—Wm. E. Helman-Pidsley (Fairbank House, Polsloe Road, Exeter).

[Several instances of the occurrence of the Spotted Crake in South Devon are mentioned by Messrs. D'Urban and Mathew in their recently-published work on the birds of the county, and the same may be said of the Hoopoe and the Grey Plover.—Ed.]

Manx Shearwater in Somersetshire.—I note (p. 412) that the Manx Shearwater is included amongst some uncommon birds lately met with in Somersetshire by Mr. Goldsmith. It may interest some of your readers to learn that I shot one of these birds during the first week of September last in the adjoining county of Devon at the further end of Woolacombe Sands. The bird in question was close in shore, in company with a few gulls, although the weather at the time was fair.—F. H. Carruthers Gould (Buckhurst Hill, Essex).

Nesting of the Quail in Devonshire.—During the past summer and autumn Quails have been very plentiful in Devonshire, and several nests have been found.—F. H. Carruthers Gould (Buckhurst Hill, Essex).

Quail in Sussex.—At page 361, the Rev. Prebendary Gordon reports a Quail killed by a reaping-machine near Midhurst. This was at Middlehurst, in Sussex, close to where I live. Now a short time back we turned out some Quails in fields close to our house, and as I have never seen or known of any others, nor has anybody that I am aware of, I expect that this was one of those which we turned out. I think it right to state this to correct a false impression.—M. Burr (Middlehurst, Sussex).

Marked Woodcocks.—In the spring of 1891 six young Woodcocks were caught by the Duke of Northumberland's head-keeper in Hulne Park

Alnwick, and marked by attaching a piece of metal round the leg, on which was stamped "N. 91." One of these was shot in the park by Earl Percy on the 31st October last. Only three Woodcocks were seen, so that the migratory birds had, apparently, not yet arrived.—E. G. Wheeler (Estate Office, Alnwick Castle).

Notes from Sussex.—A Pomatorhine Skua, immature, was shot at Bexhill, Sussex, lately, while chasing gulls; it is a very dark bird. A female Spotted Crake was shot while swimming in the marshes near Appledore, Kent, on the 4th November. While staying at Burwash, Sussex, on the 1st May last, a man who had been felling timber at Brightling Park gave me a clutch of four Woodcocks' eggs he had taken about three weeks before; he had never seen any before, nor had any of his companions.—G. W. Bradshaw (Robertson St., Hastings).

Honey Buzzard in Co. Wexford.—On the 22nd October last I received a bird of this species, which had been shot in a wood in the immediate vicinity of the town of Gorey. The entire plumage is of a dark chocolate-brown colour, showing scarcely any light edges to the feathers. The bird proved to be a male, and the stomach was filled with wasps, both perfect insects and larvæ.—Edward Williams (2, Dame Street, Dublin).

Supposed occurrence of the Purple Heron in Lancashire.—An example of this species has been recorded from "Alderley Edge, Lancashire," by Mr. J. Pickin (Zool. 1887, p. 432), which record is repeated in the new edition (1892) of Mitchell's 'Birds of Lancashire,' and in all the reviews of that book which I have seen, as the first known instance of the occurrence of the Purple Heron in Lancashire; but the addition to the county list is a spurious one, for Alderley Edge is in Cheshire, and about seven miles from the Lancashire border.—Chas. Oldham (Ashton-on-Mersey).

Tufted Duck in Norfolk.—Kindly allow me to correct an error that appears in Mr. Gurney's notes (p. 399). In the third paragraph, line 13, he states that I saw seven Tufted Duck at Ranworth Broad. This should have been printed Wroxham Broad.—T. E. Gunn (Norwich).

Bee-eater in Co. Wicklow. — On the 2nd November, Mr. John Graydon, of Delgany, shot a specimen of the Bee-eater, *Merops apiaster*, out of a flock of six which were resting in the centre of a snipe-bog some distance from that place. The bird came into my possession immediately afterwards, and proved to be a bird of the year and a female. The stomach contained the remains of three different kinds of flies and a few beetles.—Edward Williams (2, Dame Street, Dublin).

Peahen assuming the Male Plumage.—At a meeting of the Linnean Society on Nov. 3rd, Mr. G. N. Douglass exhibited the train of a Peahen which was not to be distinguished from that of a Peacock. It had been taken from a bird reared at the Castle-farm of Tilquhillie, near Banchory, N.B., and which had died at the estimated age of thirty years. For some years previously it had ceased to lay eggs, and had gradually been assuming the plumage of the male—a phenomenon usually correlated with disease of the ovaries. Such instances have been often noticed in the case of fowls, pheasants, and other birds, but never before in the case of the Peafowl.

Food of the Jay.—The following is the diet supplied to two tame Jays, showing what omnivorous birds Jays are:—The first one would eat worms, grapes, and acorns with equal avidity; but its beak could not pierce the acorn's husk until it had been partly pared off, then holding it with its foot the bird would rapidly pull it to pieces with its strong beak. In the same way, if a dead Sparrow is given to a Jay, it will stand on one part of it while with its beak it tugs at another, after the manner of a hawk. My Jay would eat the orange berries of the Solanum, if hungry, but did not care in the least for yew and privet berries. Jay No. 2 devoured peas by making a hole in the side of the pod, and after it had got them all out it would amuse itself by pulling the pod to pieces, no doubt to look for more. Sparrows' eggs dropped into the cage were adroitly caught before they reached the bottom, and a mouse or a shrew was very acceptable. Being put into the same cage as a Carrier Pigeon and a Turtle Dove, in spite of a disabled wing, and though the cage was nine feet long, the Jay soon despatched the latter by pecking its back.—J. H. GURNEY (Keswick, Norwich).

Spotted Redshank in Summer Plumage in November.—On 8th November there were eight Spotted Redshanks, *Totanus fuscus*, in Leadenhall Market; one of them, a richly mottled old bird, retaining nearly half its breeding-dress, which at so late a date was rather remarkable.—J. H. GURNEY (Keswick, Norwich).

Fork-tailed Petrel near Macclesfield.—The occurrence of a Fork-tailed Petred so far inland as Macclesfield may perhaps interest readers of 'The Zoologist.' The bird was picked up on October 11th, two days after the stranding of the 'Sirene' in a gale at Blackpool, and was sent to me as a curiosity. Some of the feathers on the forehead are tipped with white. Does this indicate a young bird? I can find no mention of it in any description of the plumage that I have seen.—NEWMAN NEAVE (Macclesfield).

Breeding of the Cut-throat, or Ribbon Finch.—Last August a pair of Cut-throat Finches, *Amadina fasciata*, in one of my large breeding-cages, went to nest, hatched their eggs, five in number, and fed the young regularly upon Abraham's "Insectivorous Birds'-food," until they were about half-grown, when one bird was carried out of the nest dead. The other four (two cocks and two hens) left the nest about the second week of September, fully fledged, able to fly as strongly as their parents, and able also, in two or three days later, to feed themselves. About the middle of September, finding that the mother bird had commenced to lay again, I removed the two young pairs, which I placed together in a separate cage. This time the hen laid only three eggs, hatched them all, carried out one dead when the nestlings were about a week old, and continued to feed the other two. These left the nest in the first week of November, and proved to be a pair. Now the interesting point with regard to these two results is that in each case the odd bird was carried out dead, and pairs were reared. If this should prove to be invariable in the case of the Cut-throat Finch, it would argue that the parents destroyed the odd birds in order to prevent the disputes which, in other species, are frequently so serious as greatly to retard their increase. That the Cut-throat Finch is very rapidly in a condition to breed is certain, for on the morning of October 12th I found that one of my hen birds had laid an egg on the sand of its cage, and during the afternoon of the same day another egg was deposited, presumably by the other young hen. The four young birds have been together since their separation from their parents, and therefore have produced eggs when little more than two months old. — ARTHUR G. BUTLER ("The Lilies," Beckenham Road, Beckenham).

Corrections, Zool. 1892.— Page 5, line 8, for "not" read "only"; p. 8, l. 2, after "nest" insert "on 18th"; p. 8, l. 8, after "slate-coloured" insert "legs flesh-coloured"; p. 8, line 33, for "fine" read "flat"; p. 10, 1st line, before "very" insert "not"; p. 11, l. 17, for "Aresbucht" read "Areschlucht"; p. 12, l. 18, for "*palustris*" read "*alpestris*"; p. 14, l. 22. for "*Picus*" read "*Pinus*"; p. 30, l. 21, for "*two* with four eggs" read "*three* with four eggs"; p. 229, l. 16 from bottom, for "egg" read "eye"; p. 265, last line, for "Marishills" read "marisma"; p. 402, l. 3, for "diameter" read "circumference."

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

Nov. 3, 1892.—Professor STEWART, President, in the chair.

Mr. W. B. Bottomley was elected.

The Rev. Prof. Henslow exhibited an instrument used in Egypt for removing the end of the Sycamore Fig, and gave some account of the mode of cultivation.

Mr. A. Smith Woodward exhibited and made remarks on some supposed fossil Lampreys, *Paleospondylus gunni*, from the old red sandstone of Caithness.

The Rev. E. S. Marshall exhibited some hybrid willows from Central Scotland, believed to be rare or new to Britain.

Mr. G. N. Douglass exhibited the train of a Peahen which had assumed the male plumage. The bird, which was reared at the Castle Farm, Tilquhillie, near Banchory, N.B., was believed to be about thirty years old at the time of its death, and for some years previously had not laid any eggs. In the opinion of the exhibiter and others present, the phenomenon was correlated with disease of the ovaries. Similar cases had occurred with fowls, pheasants, and black-game, but not, so far as was known, with Peafowl,

Mr. C. T. Druery exhibited some new examples of apospory in Ferns. namely, a specimen of *Athyrium filix-fœmina* var. *clarissima*, with pinnæ showing development of prothalli by soral apospori, and a seedling *Lastrea pseudomas-cristata*, showing prothalli developed aposporously over general surface of frond (pan-apospory).

Mr. J. E. Harting exhibited some live specimens of the Short-tailed Field Vole, *Arvicola agrestis*, and gave an account, from personal inspection, of the serious damage done by this little rodent upon the sheep-pastures in the lowlands of Scotland.

Mr. A. B. Rendle exhibited some seedling plants of the Sugar-cane which had been raised in this country by Mr. Veitch.

The discussion on several of these exhibitions having continued until a late hour, a paper by Prof. Henslow, "On a theoretical origin of Endogens through an aquatic habit," was by consent adjourned to the next meeting of the Society.

Nov. 17.—Prof. STEWART, President, in the chair.

Mr. F. W. Leslie was elected, and Mr. F. J. Clark was admitted, a Fellow of the Society.

The President having announced a proposal by the Council to present a congratulatory address to the Rev. Leonard Blomefield (formerly Jenyns), M.A., F.L.S., on the occasion of the seventieth anniversary af his election as a Fellow of the Society, and in recognition of his continuous and useful labours as a zoologist, it was moved by Sir Wm. Flower and seconded by Dr. St. George Mivart, that the address be signed and forwarded as proposed. This was carried unanimously. In moving the resolution, Sir Wm. Flower took occasion to sketch the scientific career of Mr. Blomefield, who is now in his ninety-third year, and to recapitulate the works and memoirs of which he is the author, under his earlier and better-known name of Jenyns. The address, which was beautifully illuminated on vellum, was then signed by those present.

Mr. George Murray then exhibited and made remarks upon a genus of Algæ (*Halicystis*) new to Britain, the species shown being *H. ventricosa* from the West Indies, and *H. ovalis* from the Clyde sea area.

Mr. Buxton Shilletoe exhibited an artificial cluster of the fruit ot *Pyrus sorbus*, as put up for ripening by cultivators in Sussex.

A paper was then read by the Rev. Prof. Henslow, "On a theoretical origin of Endogens through an aquatic habit based on the structure of the vegetative organs." The lecture, which was very fluently delivered, was profusely illustrated, and drew forth some interesting criticism from Prof. Boulger, Messrs. Henry Groves, H. Goss, and Patrick Geddes, to which Prof. Henslow replied.

On behalf of Mr. George Lewes, who was unable to be present, a paper was read by Mr. W. Percy Sladen on the *Buprestidæ* of Japan, upon which some criticism was offered by Mr. W. F. Kirby.

Zoological Society of London.

Nov. 1, 1892.—Sir W. H. Flower, K.C.B., LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, and September, 1892, and called special attention to a young Gibbon from Hainan, South China, of a uniform black colour, belonging to the species recently described by Mr. Oldfield Thomas as *Hylobates hanianus*, presented by Mr. Julius Neumann, and to a young male Malayan Tapir, *Tapirus indicus*, from Tavoy, Burmah, presented by Col. F. M. Jenkins.

Mr. E. Hartert exhibited (on behalf of the Hon. Walter Rothschild) examples of two new Mammals from New Guinea (*Proechidna nigro-aculeata* and *Acrobates pulchellus*), and a stuffed specimen of *Apteryx maxima* from Stewart Island.

A communication was read from Lord Lilford, giving an account of the breeding of a pair of Demidoff's Galagos in his possession.

Prof. Bell read a note on the occurrence of *Bipalium kewense* in Ireland.

Mr. Finn gave an account of his recent zoological excursion to Zanzibar.

Prof. Newton exhibited and made remarks on a specimen of *Sylvia nisoria* lately killed in Holderness (see p. 424).

Prof. F. Jeffrey Bell read a description of a remarkable new species of Echinoderm of the genus *Cidaris* from Mauritius, proposed to be called *C. curvatispinus*.

A communication was read from Sir Edward Newton and Dr. Gadow, describing a collection of bones of the Dodo and other extinct birds of Mauritius, which, having been recovered from the Mare aux Songes in that island by the exertions of Mr. Theodore Sauzier, had been by him entrusted to them for determination. The collection contained examples of the atlas, metacarpals, prepelvic vertebra, and complete pubic bones of the Dodo, which had before been wanting, as well as additional remains of

Lophopsittacus, *Aphanapteryx*, and other forms already known to have inhabited Mauritius. Besides these there were bones of other birds, the existence of which had not been suspected, and among them of the following, now described as new:—*Strix* (?) *sauzieri*, *Astur alphonsi*, *Butorides mauritianus*, *Plotus nanus*, *Sarcidiornis mauritianus*, and *Anas theodori*, the whole adding materially to the knowledge of the original fauna of Mauritius.

Mr. Oldfield Thomas gave an account of a collection of Mammals from Nyassa-land, transmitted by Mr. H. H. Johnston, under whose directions they had been obtained by Mr. Alexander Whyte.

Dr. Günther read a paper descriptive of a collection of Reptiles and Batrachians from Nyassa-land, likewise transmitted by Mr. Johnston, and containing examples of several remarkable new species, amongst which were three new Chameleons, proposed to be called *Chamæleon isabellinus*, *Rampholeon platyceps*, and *R. brachyurus*.

Mr. R. Lydekker read a memoir on some Zeuglodont and other Cetacean remains from the Tertiaries of the Caucasus.

Mr. Martin Jacoby read the descriptions of some new genera and new species of Phytophagous Coleoptera from Madagascar.

Nov. 15.—Dr. A. GUNTHER, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of October, 1892, and called special attention to a very fine male Ostrich, *Struthio camelus*, presented by Her Majesty the Queen, and to a specimen of what appeared to be a new and undescribed Monkey of the genus *Cercopithecus*, obtained by Dr. Moloney at Chindi, on the Lower Zambesi, for which the name *C. stairsi* was proposed. Attention was also called to the receipt of a series of specimens of Mammals, Birds, and Reptiles, brought by Mr. Frank Finn, on his recent return from a zoological expedition to Zanzibar, and received from several correspondents of the Society at Zanzibar and Mombasa.

The Secretary exhibited (on behalf of Mr. T. Ground) a specimen of the Siberian Pectoral Sandpiper, *Tringa acuminata*, killed in Norfolk.

Mr. G. A. Boulenger read a paper describing the remains of an extinct gigantic Tortoise from Madagascar, *Testudo grandidieri*, Vaill., based on specimens obtained in caves in South-west Madagascar by Mr. Last, and transmitted to the British Museum. The species was stated to be most nearly allied to *Testudo gigantea* of the Aldabra Islands.

Mr. W. Bateson and Mr. H. H. Brindley read a paper giving the statistical results of measurements of the horns of certain beetles and of the forcipes of the male Earwig. It appeared that in some of these cases the males form two groups, "high" and "low"; the moderately high and the moderately low being more frequent than the mean form in the same locality. It was pointed out that this result was not consistent with the hypothesis of fortuitous variation about one mean form.

A communication was read from Mr. O. Thomas, containing the description of a new Monkey of the genus *Semnopithecus* from Northern Borneo, which he proposed to call *S. everetti*, after Mr. A. Everett, its discoverer.

Mr. G. A. Boulenger read a description of a Blennioid fish from Kamtschatka belonging to a new generic form, and proposed to be called *Blenniophidium petropauli.* The specimen had been obtained in the harbour of Petropaulovski by Sir George Baden Powell, M.P., in September, 1891.—P. L. Sclater, *Secretary.*

Entomological Society of London.

November 2, 1892. — Frederick DuCane Godman, Esq., F.R.S., President, in the chair.

Mr. S. Stevens exhibited, for Mr. J. Harrison, of Barnsley, and read notes on, a beautiful series of *Arctia lubricipeda* var. *radiata,* which had been bred by Mr. Harrison this year.

Mr. G. T. Bethune-Baker exhibited specimens of *Polyommatus dispar* var. *rutilus,* taken in England by his father about sixty years ago. He stated that it was generally believed that this form of the species was confined to the Continent, but his specimens proved that it formerly occurred in England.

Mr. C. G. Barrett exhibited dark varieties of *Acronycta leporina,* bred by Mr. J. Collins, of Warrington; also a white variety of *Triphæna pronuba,* taken at Swansea by Mr. W. Holland.

Mr. M. Jacoby exhibited a specimen of *Sagra femorata,* from India, with differently sculptured elytra, one being rough and the other smooth.

Mr. J. A. Clark exhibited a long series of remarkable varieties of *Liparis monacha,* bred from a pair taken at Scarborough. Several of the specimens were as light in colour as the typical form of the species; others were quite black; and others intermediate between these two extremes.

The Rev. J. Seymour St. John exhibited a monstrosity of *Abraxas grossulariata,* and a specimen of *Tæniocampa stabilis,* with a distinct light band bordering the hind margin of the upper wings. He stated that he had bred both specimens.

Mr. E. B. Poulton exhibited two series of imagos of *Gnophos obscurata,* which had been subjected to dark and light surroundings respectively. The results were seen to be completely negative, the two series being equally light.

Mr. F. Merrifield showed a number of pupæ of *Pieris napi.* About eight of them, which had attached themselves to the leaves of the cabbage plant on which they were fed, were of a uniform bright green colour, with light yellowish edgings; of the others, those which had attached themselves to the black net covering the pot, or the brownish twigs which supported it, nearly seventy in number, were dark coloured, with dark spots and lines. The remainder were of a green colour, much less vivid than in those which had spun up on the leaves, with numerous dark spots and lines on them.

Mr. R. Adkin exhibited three bred female specimens of *Vanessa c-album*, two of which belonged to the first brood, and the third to the second brood. One of the specimens of the first brood was remarkable in having the under side of a very dark colour, identical with typical specimens of the second brood. He thought the peculiarity of colouring in this specimen had been caused by a retarded emergence from the pupa, due to low temperature and absence of sunshine.

Mr. F. W. Frohawk exhibited a series of striking varieties of *Satyrus hyperanthus*, bred from ova laid by a female taken in the New Forest in July last.

Mr. F. D. Godman exhibited a specimen of *Amphonyx medon*, Cr., received from Jalapa, Mexico, having a pouch-like excrescence at the apex of its body. Mr. McLachlan, Mr. H. J. Elwes and Mr. Poulton commented on it.

Mr. C. J. Gahan communicated a paper entitled "Additions to the Longicornia of Mexico and Central America, with notes on some previously recorded species."

Mr. W. L. Distant communicated a paper entitled "Contributions to a knowledge of the Homopterous family Fulgoridæ."

Mr. Oswald Latter read a paper (which was illustrated by the Society's new oxy-hydrogen lantern) entitled "The Secretion of Potassium-Hydroxide by *Dicranura vinula*, and the emergence of the imago from the cocoon."

Mr. H. J. Elwes and Mr. J. Edwards read a paper, also illustrated by the oxy-hydrogen lantern, entitled "A revision of the genus *Ypthima*, principally founded on the form of the genitalia in the male sex." Mr. McLachlan said he attached great importance to the genitalia as structural characters in determining species, and he believed that he could name almost any species of European Trichoptera simply from an examination of the detached abdomens of the males. Mr. Osbert Salvin said he had examined the genitalia of a large number of Hesperidæ, with the view of considering their value in distinguishing species, but at present he had not matured his observations.

Mr. S. H. Scudder communicated a paper entitled "New light on the formation of the abdominal pouch in *Parnassius*." Mr. Elwes said he had based his classification of the species of this genus largely on the structure of this abdominal pouch in the female. Mr. Jenner Weir remarked that a similar abdominal pouch was to be found in the genus *Acræa;* and Mr. Hampson referred to a male and female of *Parnassius* in Mr. Leech's collection, in which the pouch had come away from the female and was adhering to the male organs.—H. Goss & W. W. Fowler, *Hon. Secretaries.*

NOTICES OF NEW BOOKS.

A Vertebrate Fauna of Lakeland: including Cumberland and Westmorland, with Lancashire north of the Sands. By Rev. H. A. Macpherson, M.A. With a Preface by R. S. Ferguson, F.S.A. 8vo, pp. i—civ, 1—552, with Map and Illustrations. Edinburgh: David Douglas. 1892.

The Preface by Mr. Ferguson and the coloured map appended to this volume furnish the reader with a good idea of the faunal area of which it treats. It would be difficult to convey an adequate notion of the variety and extent of the contents without writing at considerable length; but we may attempt a brief notice of the more salient features of the work.

The writer of the Preface strikes a key-note when he says that modern changes must have greatly affected the fauna of Lakeland. Up to the end nearly of the last century thousands of acres in Lakeland were lying waste in open common. Enclosure Acts were obtained, and between 1780 and 1820 thousands of acres of heathy hill and rushy swamp were enclosed, and converted into cultivated fields and verdant meadows. Many tarns, such as Tarn Wadling, Gibb Tarn, &c., have been drained, and the corn now waves in rich profusion where fish once swam. Large areas long ago denuded of their ancient scrub have been replanted.

A consideration of these facts has naturally prompted an enquiry as to the former condition of the country, and an examination of the records, both published and unpublished, has revealed to the discriminating eye of our author a mass of most interesting material for a natural history of Lakeland, which in the present volume he has endeavoured to reduce to method and order. The task can have been no light one, for it embraces a considerable variety of subjects.

Amongst the introductory chapters is one on the naturalists of Lakeland. Here we find the names of Dr. Robinson, who wrote "An Essay towards a Natural History of Westmorland and Cumberland," in 1709;* James Clarke, the author of a Survey of the Lakes (1787); Richardson, who wrote a paper on the Fauna of

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* Under the title "A neglected Essay on Natural History," a review of Dr. Robinson's work appeared in 'The Field,' 26th April, 1879.

Ulleswater and a catalogue of Cumberland plants for Hutchinson's 'History of Cumberland' (1794—97); John Gough, of Kendal, and his son Thomas; Dr. John Heysham, of Carlisle, the author of a Catalogue of Cumberland Animals (1796-97), and his son Thomas Coulthard Heysham, whose names are well known to ornithologists in connection with observations on certain north-country birds.*

In the next chapter we have an account of the extinct animals of Lakeland—the Wolf, the Bear, the Wild Boar, the Red-deer and the Beaver, of which last-named species the remains (so far as Westmorland is concerned) have been found but in one locality, namely, in some alluvium in the bottom of the Ressondale Valley, near Clouds.

"The destruction of wild animals," "Variation of colour in animals," "Bird-fowling" and "Introduced Species," are the titles of the chapters which follow, and which are in turn succeeded by a "Review of the Fauna of Lakeland," which introduces us to the general body of the work. Here the Mammals, Birds, Reptiles, and Fishes are dealt with in turn, and at considerable length.

The birds, as might be expected, receive the fullest share of attention, not only on account of the large number of species, but because this class of Vertebrates has been more generally and closely studied. Amongst these are two species of which coloured figures are given—namely, the Isabelline Wheatear, *Saxicola isabellina* (Rüppell), and the Frigate Petrel, *Pelagodroma marina* (Latham), both unique of their kind—as accidental visitors to England. The latter, however, having been found dead, and washed up by the tide on Walney Island, may in this way have come from a considerable distance, so that it appears to be rather straining a point to include it as a visitor to a country which in all probability it never saw. However this may be, it is satisfactory to have a good figure of it, with such an account of the species as is here furnished. The bird seems to have a wide range in the southern hemisphere, and it is thought may possibly breed in the Canary Islands.

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* T. C. Heysham's copy of Montagu's 'Ornithological Dictionary,' bearing his book-plate, has been on the Editor's book-shelves for the last five-and-twenty years, but contains no annotations.

The other full-page plates are etchings of Gowbarrow Park, the ancestral home of the Red-deer; Levens Deer Park; Eyrie of the Sea Eagle at Buck Craig; Monkhill Lough, a haunt of Wild Swans; and other equally interesting scenes. Besides these sundry smaller woodcuts are scattered throughout the text. It would be difficult to find a more fascinating book for naturalists, or one which, in our opinion, has been more conscientiously and ably written.

The Birds of Devon. By W. S. M. D'Urban, F.L.S., F.E.S., and the Rev. Murray A. Mathew, M.A., F.L.S. 8vo, pp. i—lxxxvii, 1—460. Illustrated by coloured plates, photographs, and maps. London: R. H. Porter. 1892.

Devonshire has been the home of many excellent ornithologists each of whom has contributed in turn to its bird-lore. The literature, however, is very scattered and of very unequal merit. Only last year we noticed a book on the birds of this county, by Mr. Pidsley (Zool. 1891, p. 232), of which we were reluctantly compelled to express an unfavorable opinion, the work being considerably below the standard of excellence which is set up at the present day. This was at once apparent to the authors of the volume now before us, who, having been engaged for the last quarter of a century in collecting materials for such a work, were naturally in a position to form an opinion on the subject. It seemed to them that Mr. Pidsley's attempt was neither extensive enough as regards the field of observation, nor exhaustive enough even so far as it went. For Devonshire forms but the central portion of the south-west peninsula, and the migrations of birds especially can hardly be understood unless the adjoining counties to the east and west be considered with it.

Even the opposite portions of the county itself present differences in their summer migrants, in the classes of the rare accidental visitors which either may expect to receive, and in the shore birds which winter in the south while they desert the northern estuaries. In a large county like Devonshire, with so varied a surface, some species are common on one side though rare on the other, and in one portion appear in winter and in another in summer. Such differences can only be made apparent by carefully recording the dates of occurrence as well as the localities.

> "Some species, such as the Purple Sandpiper and Black Redstart, are common in the south-western part of Devon, and are rare in the eastern portion. Others, like the Common Redstart, Turtle Dove and Sanderling, are more frequently met with in eastern Devon than in the south and west. Again, the Pied Flycatcher, Twite and Wood Sandpiper are almost unknown in the south, but are not unfrequent in the north of the county; and some, as the Oystercatcher and Puffin, are far more plentiful on the north coast than on the south; whilst, on the other hand, Geese, some kinds of Ducks, and Terns, appear more frequently on the south coast than in the northern part of Devon.
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> "About thirty-four species, mostly accidental wanderers from the continent of Europe, have occurred in South Devon, which have not yet been recorded from North Devon, and eight species, mostly American, have been observed in the northern part of the county which have not been procured in the south.
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> "Some species come in flights at more or less distant intervals of time, such as the Crossbill, Sand Grouse, Quail, Bittern, Snowy Owl, Rough-legged Buzzard, Grey Phalarope, Skuas, &c., their occurrence at other times being rare; so that it is obviously important that the dates of such events should be carefully recorded."

These and other considerations have led the authors of the present volume to take a high standpoint in their survey of the county avifauna, with the result that the subject has been treated with a fulness and thoroughness which is highly satisfactory.

The Introduction, which extends to over eighty pages, deals first with the geographical position and physical aspect of Devon, including detailed descriptions of Dartmoor, the South Hams and Slapton Ley, East Devon, North Devon with the estuaries of the Taw and Torridge, Braunton Burrows and the cliffs, and Lundy Island, of which a nice photograph is given, showing the rocks covered with seafowl as in the nesting season. Next we have a section on "changes in the county ornis," in which some curious facts are stated as to the increase of some species, and the disappearance, or diminution in numbers, of others. In a succeeding section on "the faunistic position of species," we learn that 292 species are included in the Devonshire ornis, and that no less than 29 have been excluded in consequence of their occurrence having been incorrectly recorded, or because it rested upon insufficient evidence. One hundred and fourteen breed annually in the county, namely, 84 residents and 30 summer visitors; while half-a-dozen winter migrant and eight casual visitors have been found nesting in isolated instances.

Under the heading "Collections of Birds in Devonshire," we have an account of all that are noteworthy both in public institutions and private collections, as well as four others, which though originally found in Devonshire are not now in the county, but are preserved elsewhere. These are—the collection of Col. Montagu in the British Museum, Dr. Woodford's collection in Taunton Castle Museum, Mr. Horner's collection in the Frome Literary Institution, and Mr. Murray Mathew's collection at Buckland Dinham.

Perhaps the most interesting section of the "Introduction" is that which is headed "Lines of Migration," and which is illustrated by two maps, one showing the direction from which the principal streams of birds arrive from the European continent in autumn; the other showing the remarkable manner in which the migratory streams cross each other, but all concentrating on the south-western peninsular of England. Thus we get an explanation of how northern and southern races of the same species reach us. We have large and small Wheatears, Crossbills, Ring Plovers, Dunlins, &c., which no doubt come from different countries, it being now well known that birds of wide distribution are subject to great variation of form.

The Introduction concludes with a list of books and articles on Devonshire ornithology which have been consulted by the writers of the present work. These are twenty-eight in number, commencing with an excursion to Dartmoor in 1795, and ending with Mr. Pidsley's volume published only last year.

With the mass of information contained in the body of the work (pp. 1—442) we have not space to deal critically. It must suffice to observe that under the English name of each species, followed by its scientific designation and the provincial or local names, where such exist, we find an exact indication of its position in the county ornis, and, in the case of the rarer species, a summary of the records relating to its occurrence.

The nomenclature and arrangement which have been followed are those adopted by the Committee of the British Ornithologists' Union in the list of British birds known as the 'Ibis List,' published in 1883. Although the authors have thought it desirable to follow this list, they state (Introd. p. xiv) that "it can only be regarded as provisional, and it is to be hoped it will soon undergo revision, as neither the position nor the names of the species are always to be considered as satisfactory." In this we fully agree.

In regard to illustrations there are four coloured plates, by Keulemans, of the Black Redstart, Montagu's Harrier, Rough-legged Buzzard, and Black-headed Gull; a coloured frontispiece of Yes Tor, the home of the Ring Ouzel: and photographs of the birds at Lundy, the Start Lighthouse, Slapton Ley, and the Eddystone. These, with a good map of the county, and the maps illustrating migration already referred to, complete a volume which must for long remain the best on the subject of which it treats.

The Fauna and Flora of Gloucestershire. By C. A. Witchell and W. B. Strugnell. Royal 8vo, pp. i—xxiv, 1—300. Stroud: G. H. James. 1892.

In regard to its natural history Gloucestershire seems to have been somewhat neglected. We do not call to mind much that has been published on the subject beyond Knapp's 'Journal of a Naturalist,' which we read in our school-days; Nicholls' 'Account of the Forest of Dean'; and that apocryphal work 'The Naturalist in Siluria,' which was reviewed in these pages not long since (Zool. 1889, p. 195). The last-named, by the way, includes some remarks on White Stoats in the parish of Flaxley, on the depredations of Squirrels, and Martens in the Forest of Dean,—items of Gloucestershire Zoology to which no allusion is made in the volume before us.

Mr. Witchell, therefore, has had but few predecessors to aid his undertaking, and has had to rely mainly on his own powers of observation, and those of his contributors, of whom a goodly list is given. It looks well, in the interest of natural history, that more than fifty observers should be found able and willing to contribute information for a general work on the fauna and flora of their county, and the result of their combined observations is worthy of commendation, though we should much have preferred a careful digest of the whole in preference to the series of paragraphs which are followed by the initials of the contributors, and which give the work a fragmentary and incomplete appearance.

Putting aside the *manner* of the book, and coming to the *matter*, it is evident that Gloucesterhire has many attractions for a naturalist. The surface of the county may be divided into four regions:—

> "First, we have in the west of the Severn a forest region, including the Forest of Dean coal-field and the old Silurian rocks of May Hill. The second region resembles this, but lies on the other side of the Severn: it includes the Bristol coal-field, with the Silurian rocks of Tortworth. The flat lands round the Severn form the well-known Severn Valley, and constitute the third region; while the fourth consists of the oolite rocks which at the east of the county form a well-marked escarpment, with an old tableland on the top, sloping gently to the east."

It is obvious, therefore, that such varied physical aspects favour the growth and development of a varied flora and fauna.

With the flora we have no concern, since it comes not within the scope of a Journal devoted to zoology; but of the fauna we might have a good deal to say did space permit. The divisions of the subject are nine in number, *viz.*, Mammalia, Aves, Reptilia and Amphibia, Pisces, Crustacea, Aquatic and Terrestrial Mollusca, Heterogyna, Aculeate Hymenoptera, and Macro-Lepidoptera.

Amongst the Mammalia the most interesting are the Whiskered Bat (*V. mystacinus*), stated to be very common at Keynsham and towards Bath, and the Greater Horse-shoe Bat (*R. ferrum-equinum*), reported as fairly abundant in the Bristol district, and more so on the Somersetshire side of the Avon.

In quoting, apparently from Gilbert White, the statement (pp. 4, 5) that the Hedgehog is fond of the plantain, the root of which it bites off without injury to the leaves, Mr. Witchell is apparently not aware that this charge has been disproved, and that the defaulter is not the Hedgehog, but a night-feeding caterpillar.

The paragraphs which affirm both the inability and the ability of the Hedgehog to climb (pp. 3 and 5) should have been fused so as to remove the apparent inconsistency of the two statements.

It is remarked (p. 10) that the list of enemies of the Common Shrew "probably includes Mice and the Mole." This has been said before (*cf.* Bell, 2nd ed., p. 144), but we are not aware that there is any evidence on record to support the charge.

It is satisfactory to learn that both the Badger and the Otte still hold their own in Gloucestershire in spite of the persecution to which they are subjected whenever an opportunity occurs. The Polecat also is still found occasionally in some parts of the county, though on some estates, as on that of Lord Sherborne, it is reported to be now extinct.

Ten years ago (1882) a Marten was shot in the Forest of Dean, and about the same time one was taken alive at Berkeley, and kept for some weeks in captivity, but proved to be wild, restless, and untameable. This does not happen, however, if the animal be taken young.

That the Wild Cat was at one time a native of Gloucestershire is most probable. The name 'Catswood' occurs here and there in the county, and it is on record that Thomas de Berkeley, in Henry the First's time, had liberty by royal grant to hunt the Wild Cat, amongst other animals, in Kingswood Chase. It must now, however, be regarded, so far as England is concerned, as one of the wild animals which have become extinct within historic times.

The Black Rat is stated to be still common in some of the Bristol warehouses, and in 1872 a score or so were killed around a rick at Brownshill, near Stroud.

Under the head of Red Deer Mr. Witchell writes (p. 39):—

> "Deer seem to have been occasionally employed, when tame, for draught purposes, for, after the death of King Edward II., Abbot Thokey went, attended by his brethren, solemnly robed and accompanied by a procession from the city of Gloucester, and claimed the body for burial, which, with the observance of all possible respect, he conveyed in his own chariot *drawn by stags* to the Abbey, where it was buried with becoming solemnity."

This passage appears to be quoted from Fisher's 'History of Berkeley,' 1864, and in our opinion is founded entirely upon a misconception. We have no doubt that the *stags* in this case were not deer, but oxen. The word *Stag* (Icelandic *steggr*) really applies to the male of several animals, and in some parts of the country is especially bestowed upon a castrated taurine male from two to four years old. In this sense it is synonymous with *steer* (A. S. *steor*, Icel. *thior*). There would be nothing remarkable in the fact that the body of the king was conveyed upon a chariot drawn by oxen, which would be chosen for that purpose, in preerence to horses, on account of their slow and solemn gait.

Turning now to the section on "Birds," we observe, *en passant*, some collected observations on the occurrence of the Nightingale in Gloucestershire which are useful, coupled with the statement that one was kept in a cage for eleven years. It was supplied daily with insect food, yolk of egg, and crushed hempseed. It sang in the winter and moulted in spring.

Amongst the rarer small birds which have been met with in Gloucestershire are the Yellow-browed Warbler (p. 51), Alpine Accentor (p. 54), Bearded Tit (p. 55), Waxwing (p. 61), Ortolan (p. 71), Red-winged Starling (p. 71), and Rose-coloured Pastor (p. 72).

We cannot agree with Mr. Witchell in his scheme of classification which separates the Swifts from the Swallows by interposing the Finches, Buntings, Crows, and Larks. The researches of Parker, Garrod, and Shufeldt have shown this to be untenable.

Dr. Altum's observations on the food of the Tawny Owl are extracted (p. 85) from an article in the 'Nineteenth Century' (1892) as if they were quite new. Mr. Witchell ought to be aware that they were communicated to the German Ornithologists' Society thirty years ago, and are quoted in the first volume of the fourth edition of Yarrell's 'British Birds,' which appeared in 1871. Mr. Herbert Playne's account of a Tawny Owl which he brought up, and which became tame enough to come when called, to be allowed her liberty at night when she went mousing, and returned through a window left purposely open for her, is extremely interesting:—

> "When I took her back again to Oxford (he says), after Easter, 1890, she was able to fly; and at dusk she would dart out of my window, but by morning was back in the room. Sometimes she would stay away for a day or two, but always returned very hungry. . . . One morning in May I was awakened by a tremendous row in my study: when I opened the door, what was my surprise to see another Owl sitting on the table! He at once flew out of the window, but my Owl stayed in the room. The wild bird came nearly every evening, and used to call outside my window. Once again he came in, and about 4 o'clock both birds went out into the garden. The Jackdaws were much disturbed, and kept flying and chattering round them. No less than twenty-two Jackdaws sat gazing in a row on the chapel roof. The Owls took no notice of them; but at last the stranger, seeing me, flew off pursued by the Jackdaws."

It is to be hoped that residents in the county of Gloucester and elsewhere will profit by the information they will find in this volume on the subject of owls and hawks, and will learn to distinguish and protect those which are really useful to man. On the subject of hawks Mr. Witchell has been fortunate in enlisting the aid of Major Fisher, of Stroud, one of the best falconers of modern times. An observation from his pen (p. 99) suggests a very brief comment. Writing of Merlins "flying at hack," he says, "*hack* is a word of uncertain derivation, and in falconers' language means the keeping at liberty of any hawk that will come to feed when so at large—for a time." In all probability the term *at hack* is a corruption of the French *au taquet; voler au taquet* meaning to fly to the chopping-board on which the hawks' meat was cut up and presented to them.

But we must pass on to other sections of the Fauna, or terminate our remarks abruptly. Pages 124–148 are devoted to a consideration of the Reptilia and Batrachia found in Gloucestershire, amongst which the most noteworthy species perhaps is the Palmated Newt (*L. palmatus*). This is stated to be abundant on the hills near Stroud, and in many upland ponds ten times more plentiful than the Smooth Newt, which is locally uncommon.

The late Dr. Day, who resided during the last years of his life at Cheltenham, would have taken a keen interest in the Section on Fishes (pp. 149–166) could he have seen the proof-sheets, and from his store of ichthyological knowledge could doubtless have furnished some useful information on the Gloucestershire species and their distribution.

The account as it stands seems to us somewhat meagre, and considering the extent of coast-line which abuts on the Bristol Channel we should imagine that a great many more species are to be met with than are here mentioned. We note (p. 158) that some few years ago the Grayling was introduced by Lord Coventry into the Windrush, but has not become numerous. To judge by the Report of the Chairman of the Severn Fishery Board, 1892, there must be a good many ardent anglers in the county, for it appears that in 1891 the sum paid for one shilling licences for rod and line amounted to £508 17s.

With respect to the gift of *Lamprey-pies* formerly made to royalty by the Corporation of Gloucester, some curious extracts are supplied (pp. 165, 166) from 'Gloucestershire Notes and Queries,' but we have not space to quote them here.

The Section "Crustacea" contains but a few pages on the

Crayfish, which is abundant in many of the Gloucestershire streams and rivers, though it appears that none have yet been found in the Severn. The author of this chapter, Mr. Edwin Burgh, throws out the suggestion that in these times of agricultural depression, it might be worth while for farmers who have suitable water, to breed Crayfish and send them *viâ* Bristol to the French market, where (as a delicacy) they always command a high price.

The remaining sections of the volume (excluding the Botany) deal with the Mollusca, of which 108 species are catalogued; the Ants of Gloucestershire, concerning which there is a long contribution by the Rev. W. F. White; the Hymenoptera (pp. 196–243); and the Macro-Lepidoptera (pp. 244–259). Few counties can show such a record of good species of butterflies as are to be found in ordinarily favourable seasons in Gloucestershire, and entomologists will find much to interest them in this section of the work.

Mr. Witchell's attempt to bring together in a volume of convenient size as much reliable information as he could collect on the zoology and botany of the county in which he resides, is extremely commendable. It is by no means exhaustive, nor does the author, we imagine, profess it to be so; but it will supply a blank in the list of county faunas and floras, and will, we trust, in a second edition, lead to something still better.

Catalogue of Eastern and Australian Lepidoptera-Heterocera in the Collection of the Oxford University Museum. By Colonel C. Swinhoe, F.L.S., F.Z.S., F.E.S. Part I. Sphinges and Bombyces. 8vo, pp. viii, 324, and 8 coloured plates. Oxford: Clarendon Press. 1892.

A GREAT number of moths were described by the late Francis Walker from the collection of the British Museum, where the types still exist, and may be easily traced; but he also described several hundred species from the collection of the late Mr. Wilson Saunders, who at that time possessed the finest private entomological collection in England. The most important portion of Mr. Saunders' types were those from Sarawak, described by Walker in the 'Journal of the Linnean Society' (vols. vi.–vii.), to which, strangely enough, Col. Swinhoe makes no special allusion in his preface.

Large portions of the Saunders' collection, including the whole of the Lepidoptera-Heterocera, subsequently found a permanent abiding-place in the Oxford Museum, where many of the type-specimens described by Hope, Westwood, Moore, and other entomologists may likewise be found.

In the present work, Col. Swinhoe has given us a catalogue of the Eastern and Australian Lepidoptera in the Oxford Museum, these being the insect faunas in which he is specially interested; and much time and trouble has been given to identifying Walker's types, in addition to which many new species have been described by Col. Swinhoe himself; and upwards of 150 species of Walker's and Swinhoe's are represented on the eight plates.

The limited extent of the present work allows of very full references being given, not only to descriptions, but also to lists of species; and the book concludes with a good index. It will be of great use to lepidopterists, especially those residing abroad, on account of the identifications of Walker's species, which continental entomologists have always shown a disposition to ignore, not because his work as a whole was so unsatisfactory as they supposed, but because they cannot check it by comparison with his types (many of which are still unfigured) without the trouble and expense of a journey to England.

As we have said, the Bornean types are the most important, in the Oxford Museum; but the collection likewise contains many typical specimens from other parts of the world, besides those treated of in the present volume. It is to be hoped that the authorities will not content themselves with completing the present series of volumes on Eastern and Australian moths, but will afterwards publish an equally complete *résumé* of their unfigured types from Africa and America.

Les Coquilles Marines des Côtes de France. Descriptions des familles, genres, et espèces, par ARNAULD LOCARD, Vice-President de la Société Malacologique de France. Roy. 8vo, pp. 384, avec 348 figures. Paris: Baillière et Fils. 1892.

THIS is the third and last volume of a comprehensive work designed to bring together from existing general and local catalogues a complete summary of the molluscan fauna of France. The first two volumes appeared with the title 'Prodrome de Malacologie Française et Catalogue général des Mollusques vivants de France,' and dealt respectively with the terrestrial, fresh and brackish-water forms and with the marine mollusca. They contain only the synonymy, however, and the French localities for each species, and give no descriptions. But this deficiency is supplied in the contribution now before us, the volumes being thus inter-dependent. By their aid the author claims that any shell properly belonging to the French molluscan fauna may be identified with certainty and with very little trouble. As regards the illustrations, assuming that all the species in a given genus may be grouped according to their affinities round a certain number of prominent types, the author has supplied figures and descriptions of these, so that the enquirer has only to differentiate the surrounding allied forms by their essential characters. This practical and simple method will no doubt facilitate research; but it would have been much more convenient if the synonymy and the descriptions were in one and the same volume, instead of being separated as they are.

It is, we suppose, hopeless to expect anything like a consensus of opinion in regard to classification, but we should have liked M. Locard's work better if it were more conservative on this point, and if the author were less fond of raising mere varieties to the rank of species, and of changing well-known specific names for no good reason.

We observe that no account is given of the animals inhabiting the shells; the descriptions relate only to the shells themselves; so that while they satisfy the requirements of the mere collector, they disappoint the conchologist who finds more pleasure in examining the structure of the living mollusc and in learning something of its life-history and habits.

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